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INDEX TO
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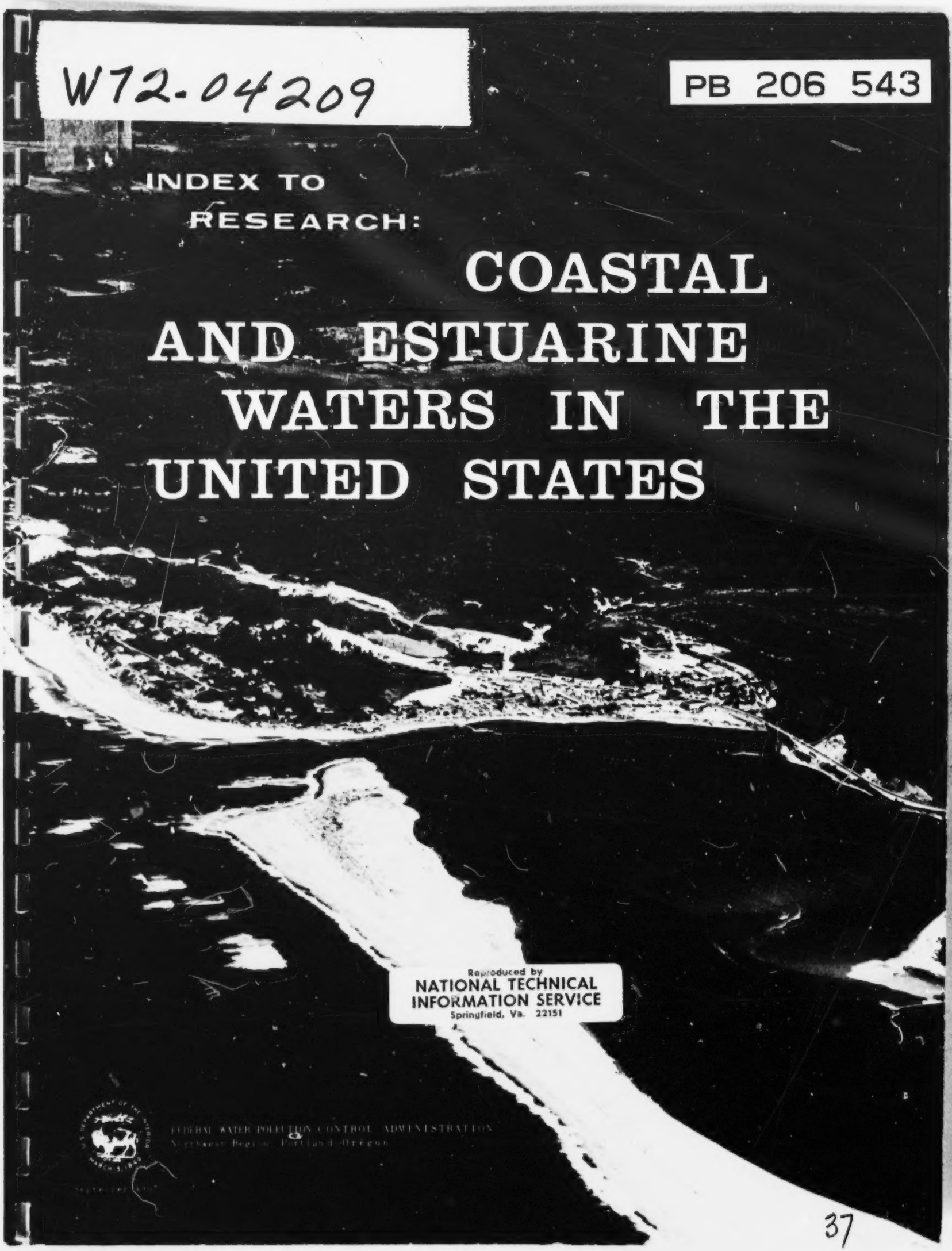
COASTAL AND ESTUARINE WATERS IN THE UNITED STATES



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Northwest Region, Portland, Oregon

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This index describes more than 250 research projects on coastal and estuarine waters of the United States that were in progress during 1966 or are planned for the near future by governmental, academic, and private facilities. The projects encompass biological, chemical, geological, and physical aspects of the marine environment. The following information is listed for each project: (1) project title; (2) state where research is conducted or the state from which the study is conducted; (3) university or agency conducting the research; (4) principal investigator(s) and (5) the information source. Projects are grouped according to four coastal regions: Pacific Coast (California to Alaska), Gulf Coast (Texas to Florida), South Atlantic Coast (Georgia to Maryland), and North Atlantic Coast (Delaware to Maine). In each regional category the projects are listed under subject headings: Biological Studies; Physical and Chemical Studies; Waste Disposal, Pollution and Water Treatment Studies; Multidiscipline Environmental Studies; and Research Projects Planned. Sources of information for this index were gathered from ten references.

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INDEX TO RESEARCH ON

COASTAL AND ESTUARINE WATERS

IN THE UNITED STATES

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UNITED STATES DEPARTMENT OF THE INTERIOR
Federal Water Pollution Control Administration
Northwest Region

September 1967

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INTRODUCTION

This index describes more than 250 research projects on coastal and estuarine waters of the United States that are in progress (during 1966) or are planned for the near future by governmental, academic, and private facilities. The projects encompass biological, chemical, geological, and physical aspects of the marine environment.

The following information is listed for each project: 1) project title; 2) state where research is conducted or the state from which the study is conducted; 3) university or agency conducting the research; 4) principal investigator(s) and 5) the information source.

Arrangement of project index. Projects are grouped according to four coastal regions: Pacific Coast (California to Alaska), Gulf Coast (Texas to Florida), South Atlantic Coast (Georgia to Maryland), and North Atlantic Coast (Delaware to Maine). (See Tables 1a-1d.)

In each regional category, the projects are listed under subject headings: Biological Studies; Physical and Chemical Studies; Waste Disposal, Pollution and Water Treatment Studies; Multidiscipline Environmental Studies; and Research Projects Planned. Exceptions to these subject headings are found under the Pacific Coast section for which no Multidiscipline Environmental Studies or Research Projects Planned information was obtained, and under the South Atlantic Coast section for which no Research Projects Planned information was obtained.

Sources of information for this index are the ten references listed in Table 3, "Information Sources." To obtain more information on a project, the information source (Table 3) should be consulted. When the information source is "personal communication", the "Response-to-Inquiry" tables (4a-4c) should be consulted; these tables are grouped according to region-state-university/agency. For these, the investigator's name and university are given along with a brief summary (where available) of the project.

No Response-to-Inquiry table is given for the Pacific Coast. Information from personnel in this region was compiled in "Inventory of Research in Water Pollution and Other Related Fields, Columbia Basin and Pacific Coast." This paper is referenced as information source number 6 in this index.

Table 1a

Current projects on coastal and estuarine waters, Pacific Coast area

Project title	State	University or agency[1]	Investigator	Information source[2]
Biological Studies				
Distribution and biology of Pacific zooplankton	Calif.	U.C.S.D.	Brinton	5
Development of oceanographic instruments for scattering layer studies	Calif.	U.C.S.D.	Boden	5
Zooplankters in the marine food chain	Calif.	U.C.S.D.	Strickland	5
Comparative ecology of the midwater faunas	Calif.	U.S.C.	Savage	5
Ultraviolet absorption in coastal waters	Calif.	U.S.C.	Tibby	4
Translocation in the giant kelp "Macrocystis"	Calif.	U.C.L.A.	Parker	5
Physiology and biochemistry of deep-sea organisms	Calif.	U.C.L.A.	Gordon	5
Biological studies utilizing the Cousteau diving saucer	Calif.	U.C.L.A.	Fager	5
Ecology and zoogeography of three species of blennoid fish	Calif.	Occidental	Stephens	5
Nervous systems of crustaceans and other arthropods	Calif.	C.I.T.	Wiersma	5
Endocrine factors associated with the water and electrolyte regulation of freshwater and marine vertebrates	Calif.	U.C.S.B.	Holmes	5
Subtidal marine algal communities	Calif.	U.C.S.B.	Neushul	5
Distribution of beach-dwelling marine arthropods	Calif.	Mills	Bowers	5
The ecology of a tidal marsh stream in California	Calif.	S.F.S.C.	Mackey	9
Reproduction and population characteristics of "Alloniscus perconvexus"	Calif.	S.J.S.C.	Church	5
Biological effects of the Alaska earthquake	Calif.	C.A.S.	Hanna	5
Research on the marine geology and biology of Tomales Bay, California	Calif.	U.Chicago	Johnson	4
Environmental physiology of two species of Pelecypods	Calif.	U.Pacific	Tucker	9
Hydrobiology of an artificially fed, enclosed lagoon at the University of California, Santa Barbara	Calif.	U.C.S.B.	Ebeling	6
Faunal constitution of South San Francisco Bay	Calif.	U.S.F.	Filice	6

Table 1a

Pacific Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Biological Studies (Cont'd)				
Ecological survey of kelp beds near Point Loma	Calif.	C.W.Q.C.B.	North	6
The marine environment offshore of Point Loma, San Diego Co.	Calif.	C.W.Q.C.B.	Turner	6
Bionomics of fishes and shellfishes	Oregon	O.S.U.	Dimick	7
Study of Beggiatoa species	Oregon	O.S.U.	Morita	7
Biological oceanography	Oregon	O.S.U.	Frolander	2
Annual phytoplankton production in Puget Sound waters	Wash.	U.Wash.	Banse	10
Distribution of demersal fishes in inshore waters	Wash.	U.Wash.	English	10
Ecology and metabolism of intertidal sand flat bottom community	Wash.	U.Wash.	Pamatmat	2
Estuarine ecology	Wash.	U.Wash.	Bevan	4
Oyster bed productivity study	Wash.	W.S.D.F.	Westley	6
A study of the Pacific oyster and the estuarine environment in North Bay of Grays Harbor	Wash.	Weyerhaeuser	Herrman	6
Influence of wet storage on the commercial handling of shellfish	Wash.	N.W.S.S.R.L.	Jakubowski	6
Physical and Chemical Studies				
Carbon dioxide in the atmosphere and its exchange with the oceans	Calif.	U.C.S.D.	Keeling	5
Isotopic oceanography and geochemistry	Calif.	U.C.S.D.	Craig	5
Development of inexpensive deep-sea free vehicles and instruments	Calif.	U.C.S.D.	Isaacs	5
Mathematical simulation of cyclic sedimentation	Calif.	Stanford	Harbaugh	5
Determination of tritium in natural waters	Calif.	U.C.S.D.	Suess	5
Initiation, development and mechanism of meandering channels on tidal flats	Calif.	Stanford	Pestrong	8

Table 1a

Pacific Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Physical and Chemical Studies (Cont'd)				
Land-sea boundary effects on small-scale circulation	Calif.	S.J.S.C.	Miller	5
Dispersion in turbulent open channel flow	Calif.	C.I.T.	Brooks	6
Biological and hydrographic survey of San Quentin estuary, Baja, Calif.	Mexico	U.S. Nat'l Museum	Barnard	7
Removal of alkalinity from sea water by clay minerals	Oregon	O.S.U.	Deffeyes	5
Oregon oceanographic studies	Oregon	O.S.U.	Burt	5
Research in air-sea energy exchange	Oregon	O.S.U.	Burt	5
The physical-chemical properties of sea water	Oregon	O.S.U.	Weyl	5
Research on foraminifera	Oregon	O.S.U.	Fowler	5
Frontal and tidal currents on the continental shelf	Oregon	O.S.U.	Pattullo	5
A study of temperature microstructures at the ocean floor and its implications with regard to heat flow observations	Oregon	O.S.U.	Bodvarsson	6
Basic nature and environmental response of marine psychrophilic bacteria	Oregon	O.S.U.	Morita	6
An investigation of fluxes of dissolved gases and nutrients relating to biochemical and aeration processes off the Oregon coast	Oregon	O.S.U.	Park	6
Alkalinity of sea water	Oregon	O.S.U.	Park	6
Oregon oceanographic studies	Oregon	O.S.U.	Shafer	4
Columbia River effects in the northeast Pacific	Wash.	U.Wash.	Barnes	4
Columbia River program	Wash.	U.Wash.	Seymour	4
Oceanographic methods	Wash.	N.W.S.S.R.L.	Kelley	4
Dynamics of the nitrogen cycle in the sea	Alaska	U.Alaska	Dugdale	5
Evolutionary mechanics of rapidly changing characters	Alaska	U.Alaska	Gutherie	5
The effect of conductivity discontinuities on telluric currents	Alaska	U.Alaska	Swift	5

Table 1a

Pacific Coast (Cont'd)

Project title	State	University or agency 1/	Investigator	Information source 2/
Waste Disposal, Pollution, and Water Treatment Studies				
Kelp habitat improvement project	Calif.	C.I.T.	North	6
Marine waste disposal and sea urchin ecology	Calif.	C.I.T.	North	4
Benthic foraminifera relationship to ocean pollution	Calif.	U.S.C.	Bandy	4
The influence of pollution on marine invertebrates	Calif.	U.S.C.	Mohr	9
Feasibility of waste disposal in the marine environment	Calif.	U.S.C.	Tibby	2
Effect of organic substances from sea on bacteria	Calif.	U.C.S.D.	Jones	3
Dominguez channel study	Calif.	S.D.L.A.	Foxworthy	6
An investigation of water and sediment quality and pollutional characteristics of San Francisco Bay	Calif.	U.C.B.	Pearson	4
Environmental surveillance program for the Georgia Pacific and Crown Simpson pulp mills, Humboldt Co., California	Calif.	H.S.C.	Cast	5
Striped bass mortality investigation	Calif.	C.D.F.G.	Dunham	5
Dissolved oxygen dynamics study of the Sacramento-San Joaquin Estuary	Calif.	C.D.F.C.-C.D.W.R.	Bailey	5
Delta Fish and Wildlife protection study	Calif.	C.D.W.R.	Coy	5
Delta-Suisun Bay pollution investigation	Calif.	C.D.W.R.	Gibson	6
Delta-Bay water quality investigation	Calif.	C.D.W.R.	Gibson	6
San Francisco Bay and Sacramento-San Joaquin Delta, California, water quality and waste disposal study	Calif.	U.S.A.C.E.	none indicated	5
Improved waste treatment design of submarine disposal	Calif.	E.S.I.	Ludwig	6
Mathematical model of hydraulic and water quality characteristics of Suisun Bay and San Pablo Bay	Calif.	W.R.E.	none indicated	6
Studies on indicator species of marine pollution	Calif.	L.B.S.C.	Reish	4
Estuarine water quality interrelationships	Calif.	U.C.B.	Selleck	4
Nuclide uptake by algae and zooplankton	Calif.	U.C.B.	Kaufman	7
Oceanographic factors in the waste disposal systems	Calif.	U.C.B.	Johnson	3
Aquatic transport of nuclear debris	Calif.	U.C.L.	Tamplin	4

NOT REPRODUCIBLE

Table 1a

Pacific Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Waste Disposal, Pollution, and Water Treatment Studies (Cont'd)				
An economic evaluation of water pollution control	Oregon	O.S.U.	Castle	4
An economic evaluation of water pollution control Yaquina Bay, Oregon	Oregon	O.S.U.	Castle	4
Pulp mill waste degradation in marine waters	Oregon	O.S.U.	Burgess	4
Effects of pesticides on estuarine organisms	Oregon	O.S.U.	Millemann	4
Ecological and radiological study of the benthos in the Pacific Ocean off Oregon	Oregon	O.S.U.	Carey	4
Ecological studies of radioactivity in the Columbia River Estuary and adjacent Pacific Ocean	Oregon	O.S.U.	Osterberg	4
Estuarine water quality	Oregon	O.S.U.	Curl	6
Relationship of aquatic flora to water quality and pollution	Oregon	O.S.U.	Phinney	6
Program for water pollution specialists in algal biology	Oregon	O.S.U.	Curl	2
Marine radiobiology	Oregon	O.S.U.	Osterberg	2
Fresh-water and marine pollution biology program	Oregon	O.S.U.	Warren	2
Components of kraft mill wastes and their toxicities	Oregon	O.S.U.	Marvell	2
Radiosensitivity of marine organisms	Oregon	O.S.U.	Holton	2
Heavy metal poisons in waters and industrial wastes	Oregon	P.S.C.	Johnson	4
Benthic faunal indicators of pollution in Coos Bay	Oregon	P.S.C.	Macnab	4
Water pollutants determinable by gas chromatography	Oregon	P.S.C.	Ferguson	9
Test device for collecting marine invertebrates	Oregon	F.W.P.C.A.	Clothier	6
Annotated bibliography of coastal and estuarine waters of Oregon	Oregon	F.W.P.C.A.	Ditsworth	6
The movement of radionuclides in the Columbia River Estuary	Oregon	U.S.G.S.	Hubbell	4
The fate of iron and zinc in natural surface waters	Wash.	U.Ill.	O'Connor	4
Environmental radiation studies	Wash.	U.Wash.	Donaldson	4

Table 1a

Pacific Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Waste Disposal, Pollution, and Water Treatment Studies (Cont'd)				
Ecological studies for presence of toxin-producing gram positive spore forming bacteria	Wash.	N.W.S.S.R.L.	Beck	4
Washington State enforcement project	Wash.	F.W.P.C.A.	Kari	6
Pulp mill wastes in the marine environment	Wash.	U.Wash.	Carlson	6
Salt water entrainment for dilution in sewer outfalls	Wash.	U.Wash.	Nece	10
Effects of waste disposal into Puget Sound waters adjacent to Metropolitan Seattle area	Wash.	Metro	none indicated	6
A study of the water quality, ecology, and hydrology of the Green-Duwamish Estuary	Wash.	Metro	none indicated	6
Estuarine pesticide monitoring	Wash.	W.S.D.F.	Lindsay	6
Chemical control for oyster predators	Wash.	W.S.D.F.	Lindsay	6
Bioassay of marine waters of the State of Washington	Wash.	W.S.D.F.	Woelke	6
Ecology of paralytic shellfish toxicity in Washington	Wash.	U.Wash.	Sparks	9
Influence of industrial and municipal wastes on estuarine and offshore water quality	Wash.	U.S.G.S.	Santos	4
Effects of inactivation of enteric viruses by ultraviolet radiation in sea water	Wash.	N.W.S.S.R.L.	Hoff	6
Effects of a large, raw sewage outfall on the marine benthos	Wash.	U.Wash.	Oglesby	6
Pesticides investigations	Alaska	B.C.F.	Sears	6

1/ Abbreviations are defined in Table 2.
2/ Information sources are cited in Table 3.

Table 1b

Projects on coastal and estuarine waters, Gulf Coast area

Project title	State	University or agency[1]	Investigator	Information source[2]
Biological Studies				
Serpulidae worm fouling of water intakes	Texas	U.Texas	Behrens	1
Metabolism of marine bays of Texas	Texas	U.Texas	Parker	10
Effects of antibiotics on fungus parasites in oysters	Texas	Texas A&M	Ray	1
Primary production from a fixed platform off Panama City, Florida	Texas	Texas A&M	El-Sayed	1
Laboratory study of toxic dinoflagellates	Texas	Texas A&M	Ray	1
Seasonal abundance and distribution of the isthiophorid fishes in relation to critical hydrographic parameters in the northeastern Gulf of Mexico	Texas	Texas A&M	Vick	1
Organic production of epifaunal organisms	Texas	Texas A&M	Pequegnat	1
Ecology of principal waterfowl foods of the Laguna Madre	Texas	B.S.F.&W.	McMahan	4
Evaluation of various fish tagging methods and several fresh-water fishes and estuarine fishes of Louisiana	Louisiana	L.S.U.	Smitherman	1
Distribution and relative abundance of blue catfish, Ictalurus furcatus, and channel catfish, Ictalurus punctatus, with relation to salinity	Louisiana	L.S.U.	Smitherman	1
Biology of the bowfin, Amia calva, in southwestern Louisiana coastal impoundments	Louisiana	L.S.U.	Smitherman	1
Nutrient cycles in estuaries	Mississippi	Gulf Coast Research Lab	Abbott	1
Primary production and decomposition in estuarine water	Florida	U.Florida	Putnam	10
Role of nannoplankton in productivity	Florida	F.S.U.	Collier	1
Effects of sediment diagenesis and compaction on microbial activity	Florida	F.S.U.	Oppenheimer	5
Artificial reefs: productivity	Florida	F.S.U.	Menzel	1
The biology of the infauna of a tropical soft bottom area	Florida	U.Miami	Moore	7

Table 1b

Gulf Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Biological Studies (Cont'd)				
Icthyofauna of a Florida coral reef	Florida	U.Miami	Starck	5
Research problems in marine microbiology	Florida	U.Miami	Wood	5
Taxonomy and ecology of inshore marine microbiota	Florida	-	Lackey	4
Benthic communities	Florida	B.C.F.	Taylor	4
Physical and Chemical Studies				
Stable carbon isotope ratios and their changes	Texas	U.Texas	Parker	1
Isolation and characterization of principal organic compounds in sea water	Texas	Texas A&M	Jeffrey	1
The chemistry and analysis of trace metals in sea water	Texas	Texas A&M	Hood	4
Oceanography and meteorology of the Gulf of Mexico	Texas	Texas A&M	Pequegnat	1
Dye dispersal characteristics in vicinity of north jetty at Freeport, Texas	Texas	Texas A&M	Angino	1
A study of the disposal of the effluent from a large desalination plant	Texas	Texas A&M	Pequegnat	1
Interaction of nitrosylruthenium compounds with particulates in an aquatic environment	Texas	U.Texas	Gloyna	7
Chemistry and sea water laboratories	Texas	B.C.F.	Marvin	4
Hydrology of the Mississippi embayment area	Wash.,D.C.	U.S.G.S.	Cushing	7
Fluorescent tracing of sediments in coastal areas	Florida	U.Florida	Bruun	10
Tracing of special material transport in the ocean at Cape Kennedy	Florida	U.Florida	Bruun	4
Chemical environ	Florida	B.C.F.	May	4

Table 1b

Gulf Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Waste Disposal, Pollution & Water Treatment Studies				
Metabolic effect of polluted water on fish	Texas	U.Texas	Wohlschlag	1
Pollution investigations of Texas marine waters	Texas	U.Texas	Gloyna	1
Biological studies of polluted waters	Texas	U.Texas	Copeland	1
Simulation of flow characteristics and waste loading effects on the Houston Ship Channel	Texas	Texas A&M	Hann	1
Conference on pollution and marine ecology	Texas	Texas A&M	Hood	4
Pollution studies in Lower Mississippi River	Louisiana	Tulane	Blessey	1
Insecticide concentration in shrimp	Louisiana	Tulane	Blessey	1
Biological and radiological wastes from a primate center	Louisiana	Tulane	Blessey	1
Ecology of bacterial indices of contamination	Alabama	G.C.S.S.R.C.	Presnell	4
Chlorinated pesticides and chemical pollutants in shellfish from the Gulf of Mexico and South Atlantic states	Alabama	G.C.S.S.R.C.	Tyo	4
Evaluation of the shellfish growing areas adjacent to the Gulf Coast Shellfish Sanitation Research Center	Alabama	G.C.S.S.R.C.	Presnell	4
Studies on toxic shellfish in Lemon Bay, Florida	Alabama	G.C.S.S.R.C.	Craft	4
Occurrence and distribution of toxigenic bacteria in the Gulf Coast area	Alabama	G.C.S.S.R.C.	Russell	4
Study of water coagulation	Florida	U.Florida	Kiker	1
Iodine disinfection of water supplies	Florida	U.Florida	Kiker	1
Oxidation ponds in treatment of sewage	Florida	U.Florida	Kiker	1
Anti-pollution and sewage disposal for Florida communities	Florida	U.Florida	Kiker	1
Chemical and biological treatment of wood reduction liquid wastes	Florida	U.Florida	Kiker	1
Estuarine pollution problems	Florida	U.Florida	Kiker	1
Survival of pathogenic bacteria in the marine environment	Florida	F.S.U.	Litsky	1
Marsh plants of Florida area as related to water pollution	Florida	F.S.U.	Godfrey	3

Table 1b

Gulf Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Multidiscipline Environmental Studies				
Environmental research in the zero-energy land-sea boundary zones	Florida	F.S.U.	Warnke	1
Environmental studies of coastal areas and the continental shelf	Florida	F.S.U.	Goodell	1
Estuarine ecology study in relation to water use	Florida	U.Miami	Idyll	10
Dynamics of chemical and physical characteristics of water, bottom muds and aquatic life in a large impoundment on a river	Alabama	Auburn	Lawrence	1
Evaluation of estuarine data	Texas	B.C.F. (Galveston)	Chapman	7
Sedimentary and foraminiferal ecology, inner continental shelf of South Louisiana	Texas	Rice U.	Lankford	5
Research Projects Planned				
Biological studies related to waste disposal	Texas	U.Houston	Bennett	1
Studies of coastal environment	Texas	U.Houston	Myrick	1
Accumulation of pesticides in plants and sediments	Louisiana	Tulane	Blessey	1
Marine environmental studies	Alabama	U.Alabama	Rounsefell	1
Bacterial studies in two estuaries; one polluted and one clean	Florida	U.Florida	Tyler	1
Physical, chemical and microbiological parameters of the northeastern shoreline of the Gulf of Mexico	Florida	F.S.U.	Litsky & Oppenheimer	1
Effect of land utilization on biota of the land/sea boundary	Florida	F.S.U.	Collier	1
Quantitative studies of beach profiles	Florida	F.S.U.	Warnke	1

1/ Abbreviations are defined in Table 2.
2/ Information sources are cited in Table 3.

Table 1c

Projects on coastal and estuarine waters, South Atlantic Coast

Project title	State	University or agency[1]	Investigator	Information source[2]
Biological Studies				
Influence of cations on marine bacteria	Georgia	U.Georgia	Payne	5
Ecology and evolution of ecotypes of estuarine crustacea	Georgia	Emory U.	Burbanck	5
Systematics and occurrence of fungi in marine phytoplankton	N.Car.	Duke	Johnson	1
Environmental effects on larval development and shell formation in Littorina picta Philippi	N.Car.	Duke	Costlow	5
Ecology of Coccolithophoridaceae of Atlantic coastal waters	Virginia	Old Dominion	Marshall	5
Daily vertical migration of planktonic copepods	Virginia	V.I.M.S.	Woodmansee	5
Lacustrine and estuarine fungi	Maryland	U.Maryland	Paterson	5
Eggs, larvae, and young of the fishes of the Chesapeake Bay region	Maryland	U.Maryland	Mansueti	5
Physical and Chemical Studies				
Chemical exchanges across sediment-water interfaces	S.Car.	U.S.Car.	Nelson	10
Biogenic carbonates and water	Maryland	Johns Hopkins	Lerman	5
Sedimentation and mineral assemblages in estuaries	Maryland	Johns Hopkins	Schubel	2
Effects of heated water in a tidal estuary	Wash.,D.C.	U.S.G.S.	Cory	7
Waste Disposal, Pollution & Water Treatment Studies				
Estuarine fluorides	N.Car.	U.N.Car.	Weiss	1
Organics in water	N.Car.	U.N.Car.	Johnson-Weiss	1
Insecticides in the aquatic environment	N.Car.	U.N.Car.	Weiss	1
Microflotation of algae	N.Car.	U.N.Car.	Lamb-Mah	1
Utilization of organic nitrogen compounds by algae	N.Car.	U.N.Car.	Lamb-Mah	1

Table 1c

South Atlantic Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Waste Disposal, Pollution & Water Treatment Studies (Cont'd)				
Phosphate cycling in natural systems	N.Car.	U.N.Car.	Kuenzler	1
Removal of ammonia by bubble aeration	N.Car.	U.N.Car.	Lamb	1
Short-term biochemical oxygen demand tests	N.Car.	U.N.Car.	Lamb	1
Oxidation ponds and tertiary treatment of municipal wastes	N.Car.	U.N.Car.	Weiss	1
Kinetics of acetate metabolism during sludge digestion	N.Car.	U.N.Car.	Smith-Mah	1
Accumulation of radionuclides by vertebrates	N.Car.	U.N.Car.	Baptist	4
Accumulation of radionuclides by invertebrates	N.Car.	U.N.Car.	Price	4
Measurement of radionuclides in estuarine and marine environments	N.Car.	B.C.F.	Schelske	4
Cycling of radionuclides and their effects upon organisms in the marine environment	N.Car.	B.C.F.	Rice	7
Accumulation of fission products by marine fish and shellfish	N.Car.	B.C.F.	Rice	4
Toxicity of industrial wastes to marine organisms	Virginia	V.I.M.S.	Brehmer	10
Effects of thermal effluents on marine organisms	Virginia	V.I.M.S.	Brehmer	3
An analysis of alternative pollution control systems for the Potomac Estuary	Wash.,D.C.	R.F.F.	Davis	4
Low flow augmentation for stream pollution abatement	Maryland	Johns Hopkins	Geyer	3
Phosphate removal from activated sludge	Maryland	Johns Hopkins	Jensen	1
Heat exchange in the aquatic environment	Maryland	Johns Hopkins	Jensen	1
Storm drainage research	Maryland	Johns Hopkins	Jensen	1
Thermal pollution effects on productivity	Maryland	U.Maryland	Keller	1

Table 1c

South Atlantic Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Multidiscipline Environmental Studies				
Biological baselines	N.Car.	U.N.Car.	Weiss	1
Multidiscipline research on North Carolina estuaries	N.Car.	U.N.Car.	Howells	1
Cooperative research and research training program in biological oceanography	N.Car.	Duke	Menzies	5
Inventory of water resources of Virginia	Virginia	V.P.I.	Walker	5
Multidiscipline research on Virginia estuaries	Virginia	V.I.M.S.	Brehmer	1

1/ Abbreviations are defined in Table 2.
2/ Information sources are cited in Table 3.

Table 1d

Projects on coastal and estuarine waters, North Atlantic Coast area

Project title	State	University or agency[1]	Investigator	Information source[2]
Biological Studies				
Proteolytic marine bacteria of Chesapeake Bay	Pa.	Lehigh	Merkel	1
Dynamics of oceanic zooplankton	Pa.	Lehigh	Sutcliffe	5
Rhythmic skeletal growth fabrics in marine organisms	N.J.	Princeton	Fischer	5
Life history studies on marine and freshwater zooplankton	Conn.	Yale	Deevey	5
Environmental relationships of benthos in salt ponds	R.I.	U.R.I.	Fish	4
Programs in invertebrate zoology and marine botany	Mass.	W.H.O.I.	Armstrong	5
Marine zooplankton community	Mass.	W.H.O.I.	Conover	5
Biology of larger pelagic fishes of the northwestern Atlantic	Mass.	W.H.O.I.	Mather & Schroeder	5
Composition, structure and dynamics of marine benthic communities	Mass.	W.H.O.I.	Sanders	5
Enteric bacteria and viruses in sewage, water and shellfish	N.H.	U.N.H.	Slanetz	9
Physical and Chemical Studies				
Long salt-bridge methods and liquid junctions	Pa.	Swarthmore	Mangelsdorf	7
Artificial mixing of stratified fluids	N.J.	Princeton	McMichael-Brush	1
Mixing by a jet in a stratified fluid	N.J.	Princeton	McMichael	1
The yearly nitrogen cycle in an estuary	N.J.	Rutgers	Durand	7
Critical study of analytical methods for seawater	N.Y.	N.Y.U.	Edwards	9
Computer interpretation of dye dump studies	N.Y.	N.Y.U.	Mehr	10
Oxygen resources of tidal waters	N.Y.	Cornell	Barlow	3
Mixing, diffusion and circulation rates in ocean waters	N.Y.	Columbia	Ewing	4
Hydrocarbons in the marine environment	Mass.	M.I.T.	Clark	2
Dynamics of sedimentary processes	Mass.	M.I.T.	Ippen-Drinker	5
Sediment transport mechanics	Mass.	M.I.T.	Kennedy & Partheniades	5

Table 1d

North Atlantic Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Waste Disposal, Pollution and Water Treatment Studies				
Turnover of materials between highlands, marshes and the ocean	Del.	U.Del.	Daiber	1
Basic toxicological problems	Del.	U.Del.	Wilber	1
Metal poisonings of fish and invertebrates	Del.	U.Del.	Wilber	1
Water studies of the Delaware Estuary and Bay	Del.	Del.W.P.C.	Bryson	8
Shoreline dispersion of waste effluents and tributary streams	Del.	Del.W.P.C.	Bryson	8
The identification and the cause and effect relationship of all the chemicals entering the Delaware Estuary	Del.	Del.W.P.C.	Bryson	8
Waste assimilation characteristics of estuaries	Del.	Del.W.P.C.	Bryson	8
Measurement of estuarine water quality	N.J.	B.S.F.&W.	Prager	4
Effect of the effluent from an atomic power plant on the adjacent portion of Barnegat Bay, New Jersey	N.J.	N.E.S.S.R.C.	Campbell	4
Finite difference methods of analysis of the dispersal of pollutants in a tidal estuary	N.Y.	N.Y.U.	Bella	1
Eutrophication of tidal waters	N.Y.	Cornell	Barlow	10
Estuarine water quality and pollution	N.Y.	Manhattan	O'Connor	10
The microbiology of the Connecticut River	Conn.	U.Conn.	Trainor	1
Biological, economic, and engineering aspects of depuration of shellfish	R.I.	U.R.I.	Marshall	1
The effects of pollution on benthic marine plant communities	R.I.	U.R.I.	Conover	10
Production of pro- and anti-bacterials by marine algae	R.I.	U.R.I.	Sieburth	3
Survival of viruses in shellfish	R.I.	N.E.S.S.R.C.	Cabelli	4
Mechanics of aeration and dispersion in river and estuary pollution	Mass.	M.I.T.	Harleman	4

Table 1d

North Atlantic Coast (Cont'd)

Project title	State	University or agency[1]	Investigator	Information source[2]
Waste Disposal, Pollution and Water Treatment Studies (Cont'd)				
Systems analysis for shipborne municipal incineration	Mass.	Harvard	Silverman	4
Effect of organic substances from sea on bacteria	Mass.	Boston U.	Jones	2
Effect of nitrification of organic wastes on waters in the natural environment	Maine	U.Maine	Keshaven	4
Factors influencing survival of bacteria in sea water	Ohio	Cincinnati U.	Scarpino	2
Multidiscipline Environmental Studies				
Estuarine studies	R.I.	N.E.S.S.R.C.	Kelley	4
Raritan Bay Project--cooperative survey of shellfish resource and quality in Raritan Bay with P.H.S. Raritan Bay Project	R.I.	N.E.S.S.R.C.	Macomber	4
Estuarine research project	Mass.	M.D.M.F.	Fitzpatrick	4
Research Projects Planned				
Estuarine studies	Del.	U.Del.	Wilber	1
Effects of oil pollution	N.J.	Rutgers	Hunter	1
Oxygen regeneration of polluted streams	N.J.	Rutgers	Whipple	1
Estuarine studies in Maine	Maine	U.Maine	Dean	1

1/ Abbreviations are defined in Table 2.
2/ Information sources are cited in Table 3.

Table 2

University/Agency Abbreviations Used in the Index

Abbreviation	Name of University/Agency
A.E.C.	Atomic Energy Commission (U.S.)
B.C.F.	Bureau of Commercial Fisheries (U.S.)
B.S.F.&W.	Bureau of Sport Fisheries and Wildlife (U.S.)
C.A.S.	California Academy of Sciences
C.D.F.G.	California Department of Fish and Game
C.D.W.R.	California Department of Water Resources
C.I.T.	California Institute of Technology
C.W.Q.C.B.	California Water Quality Control Board
Del.W.P.C.	Delaware Water Pollution Commission
E.S.I.	Engineering-Science Incorporated
F.S.U.	Florida State University
F.W.P.C.A.	Federal Water Pollution Control Administration
G.C.S.S.R.C.	Gulf Coast Shellfish Sanitary Research Center (U.S.)
H.S.C.	Humboldt State College
L.B.S.C.	Long Beach State College
L.S.U.	Louisiana State University
M.D.M.F.	Massachusetts Department of Marine Fisheries
METRO	Municipality of Metropolitan Seattle
M.I.T.	Massachusetts Institute of Technology
N.E.S.S.R.C.	Northeast Shellfish Sanitary Research Center (U.S.)
N.W.S.S.R.L.	Northwest Shellfish Sanitation Research Laboratory
N.Y.U.	New York University
O.S.U.	Oregon State University
P.S.C.	Portland State College
R.F.F.	Resources For the Future
S.D.L.A.	Sanitation District of Los Angeles
S.F.S.C.	San Francisco State College
S.J.S.C.	San Jose State College
U.C.B.	University of California, Berkeley
U.C.L.	University of California, Livermore
U.C.L.A.	University of California, Los Angeles
U.Conn.	University of Connecticut
U.C.S.B.	University of California, Santa Barbara
U.C.S.D.	University of California, San Diego
U.Del.	University of Delaware
U.Ill.	University of Illinois
U.N.Car.	University of North Carolina
U.N.H.	University of New Hampshire
U.R.I.	University of Rhode Island
U.S.A.C.E.	United States Army Corps of Engineers
U.S.C.	University of Southern California
U.S.Car.	University of South Carolina
U.S.G.S.	United States Geological Survey

Abbreviation	Name of University/Agency
U.Wash.	University of Washington
V.I.M.S.	Virginia Institute of Marine Science
V.P.I.	Virginia Polytechnic Institute
W.H.O.I.	Woods Hole Oceanographic Institute
W.P.H.S.	Washington Public Health Service
W.R.E.	Water Resources Engineers, Inc.
W.S.D.F.	Washington State Department of Fisheries

Table 3

Information Sources

Source Number	Source Citation
1.	Personal communication. (Also see Tables 4a-4c).
2.	Water Pollution Control Research and Training Grants. List of 1965 Awards: Research Grants, Research Fellowships, Training Grants, Demonstration Grants. Public Health Service Publication No. 1100, 1965 Edition. U. S. Department of Health, Education and Welfare, Public Health Service, Division of Water Supply and Pollution Control, Washington, D.C.
3.	Water Pollution Control Research and Training Grants--Index of 1962-1964. Report WP-17 Federal Water Pollution Control Administration, U. S. Department of the Interior, Washington, D.C., 1966.
4.	Notice of Research Projects. Science Information Exchange, Smithsonian Institution, Washington, D.C., 1966.
5.	Grants and Awards. National Science Foundation, Washington, D.C., 1965.
6.	Inventory of Research in Water Pollution and Other Related Fields, Columbia Basin and Pacific Coast, mimeographed report. Pacific Northwest Water Laboratory, Federal Water Pollution Control Administration, U. S. Department of the Interior, Corvallis, Oregon. 1966.
7.	Water Resources Research Catalog, part 1, Federally Supported Research in Progress. Office of Water Resources Research, U.S. Department of the Interior. U.S. Government Printing Office, Washington, D.C., September 1965.
8.	Water Resources Research Catalog, part 2, Non-Federally Supported Research in Progress. Office of Water Resources Research, U.S. Department of the Interior. U.S. Government Printing Office, Washington, D.C., September 1965.
9.	Research Grants Index Fiscal Year 1964. Public Health Service Publication No. 925 (in 2 volumes) 1964 edition. U.S. Department of Health, Education and Welfare, Public Health Service, National Institute of Health, Division of Research Grants, Bethesda, Maryland.
10.	Research Grants Index Fiscal Year 1965. Public Health Service Publication No. 925 (in 2 volumes) 1965 edition. U.S. Department of Health, Education and Welfare, Public Health Service, National Institute of Health, Division of Research Grants, Bethesda, Maryland.

Note: The Public Health Service, National Science Foundation, and Office of Water Resources Research reports are available in most university libraries, from the particular agency, or from the U.S. Government Printing Office.

Scientific investigators and program managers may obtain information on projects listed by the Science Information Exchange by writing to the Director of the Science Information Exchange, 209 Madison National Bank Building, 1730 M Street, N.W., Washington, D.C. 20036.

The "Inventory of Research in Water Pollution and Related Fields, Columbia Basin and Pacific Coast States, 1965" has been distributed on a limited basis only. Copies of it may be obtained, if available, from the Laboratory Director, Pacific Northwest Water Laboratory, 200 S. 35th Street, Corvallis, Oregon 97330.

Table 4a

Summary of Responses to Inquiries on
Research-in-Progress in Marine Waters,
Gulf Coast

Texas

University of Texas, Austin, Texas 78712

Center for Research in Water Resources. Director: E. F. Gloyna.

Pollution investigations of Texas marine waters. Several surveys on pollution in the marine waters have been conducted for the Texas Water Development Board.

University of Texas, Institute of Marine Science, Port Aransas, Texas 78373.
Director: D. E. Wohlschlag.

Dr. Parker. Laboratory experiments are being conducted on stable carbon isotope ratios and their changes through a petrochemical industrial establishment through effluent and through ordinary sea water and marine sediments.

Dr. B. J. Copeland. Investigations of biological properties of polluted waters.

Dr. D. E. Wohlschlag. Metabolic effect of polluted water on fish. Experimental work on the metabolic levels of fish and their depression by slightly polluted waters over and above effects of low oxygen and salinity stresses.

Dr. E. W. Behrens. Serpulidae worm fouling of water intakes. The geological aspects of deposits made by serpulidae worms on the intake pipes of an electric power plant are being investigated. Experiments are being conducted to determine the nature of substrates to which these worms attach themselves in relation to their general biological histories.

Texas A & M University, College Station, Texas 77843

Department of Civil Engineering, Environmental Engineering Division.
Head: W. B. Davis.

R. W. Hann. Simulation of flow characteristics and waste loading effects on the Houston Ship Channel.

Departments of Oceanography and Meteorology. Acting Head: W. E. Pequegnat.

The 1964-1965 Summary of Research Projects of these departments lists 35 projects in progress or recently terminated. Because these departments perform research in many parts of the world, some of the projects listed are not pertinent to our interests. Only those relating to the Gulf of Mexico are given.

Texas A & M (Cont'd)

Dr. W. E. Pequegnat. Oceanography and meteorology of the Gulf of Mexico.

Only a few parts of this multidiscipline, broad-scoped study appear to be of special interest to us. These are:

1. Air-sea interaction studies conducted from offshore platforms located at Panama City, Florida and from the Research Vessel "Alaminos."

2. Instrument development.

3. Studies of biological fouling organisms near Panama City, Florida.

Professor Ray. Effects of antibiotics on fungus parasites in oysters. (Terminated)

All commercially available antifungal and antibacterial antibiotics were screened to determine their effects on Dermocystidium marinum in oyster tissue.

Professor Jeffrey. Isolation and characterization of principal organic compounds in sea water. (Terminated)

An analytical scheme for isolating and characterizing major dissolved organic components at various depths in the water column in the marine environment was being developed.

Professor Angino. Dye dispersal characteristics in vicinity of north jetty at Freeport, Texas. (Terminated)

Mixing characteristics of ocean waters relative to seasonal and sea state conditions were studied.

Professor El-Sayed. Primary production from a fixed platform off Panama City, Florida.

Primary production here is compared to that found during monthly cruises in the northeastern Gulf of Mexico. Seasonal and yearly variations of productivity and chemical and physical factors influencing productivity are also being studied.

Professor Ray. Laboratory study of toxic dinoflagellates.

Shellfish will be subjected to certain dinoflagellates to determine if the shellfish will produce toxic symptoms when eaten by mammals and birds.

Texas A & M (Cont'd)

Professor Vick. Seasonal abundance and distribution of the isthiophorid fishes in relation to critical hydrographic parameters in the northeastern Gulf of Mexico. (Terminated)

Catch records, hydrographic data, drift bottle data and other physical data were correlated with distribution and abundance of these fish (sailfish, spoonfish and marlin).

Professor Pequegnat. Organic production of epifaunal organisms.

The rate of production and the distribution of organic matter produced by epifaunal organisms on hard substrates in the shallow (< 50 meters) sublittoral zone is being studied.

Professor Pequegnat. A study of the disposal of the effluent from a large desalination plant.

This long term study is designed to determine probable and actual effects on the marine environment of the disposal of hot saline effluent from a desalination plant.

University of Houston, Houston, Texas 77004

Department of Biology. Chairman: E. O. Bennett

Professor E. O. Bennett. Biological studies related to waste disposal. A grant, relating to studies of this nature, is pending.

Cullen College of Civil Engineering. Chairman: J. E. Hoff.

Professor H. N. Myrick. Studies of coastal environment. These studies will be initiated during the coming year.

Louisiana

Louisiana State University, Baton Rouge, Louisiana 70803

Louisiana Cooperative Fishery Unit (School of Forestry and Wildlife Management participating) Professor R. O. Smitherman, Unit Leader.

R. O. Smitherman and W. R. Latapie, Jr. Evaluation of various tagging methods on several freshwater fishes and estuarine fishes of Louisiana.

The retention rates of several types of tags, their effect on fish tissue, tag loss, use of narcotizing agents and antiseptic materials and growth and mortality rates of tagged and untagged fish are being investigated.

Louisiana State University (Cont'd)

R. O. Smitherman and W. G. Perry, Jr. Distribution and abundance of blue catfish Ictalurus furcatus and channel catfish Ictalurus punctatus with relation to salinity.

Effects of salinity upon relative abundance and distribution of the fishes, the food habits and food preferences and the age composition and growth of the fishes are being studied.

R. O. Smitherman and Gus Stacy, III. Biology of the bowfin Amia calva in southwestern Louisiana coastal impoundments.

Food habits and food preferences, growth rates and age composition, sex ratios, breeding habits and fecundity and habitat preference of the bowfin in impoundments on the Lacassine and Sabine Refuges are being studied.

Tulane University, New Orleans, Louisiana 70118

Department of Civil Engineering, Professor Walter E. Blessey, Head.

Stream pollution study of the Mississippi River in the vicinity of New Orleans.

A study of insecticide concentration in shrimp in the Mississippi River in the New Orleans area.

A study of the biological and radiological wastes from a primate center and the impact upon the environment, namely the Abita River, the Boque Falaya River, and the Tchefuncte River.

The accumulation of pesticides in plants and bottom sediments and pesticide transport from Lake Boeuf and Bayou Boeuf into Lac Des Allemanus.

Mississippi

Gulf Coast Research Laboratory, Ocean Springs, Mississippi 39564.

Dr. Gordon Gunter, Director.

Dr. Walter Abbott. Nutrient cycles in estuaries under hyper fertilized conditions. The dynamics of nitrate and phosphate utilization in laboratory model systems and estuarine ponds are being studied.

Alabama

Auburn University, Auburn, Alabama 36830

Department of Zoology-Entomology, Professor F. S. Arant, Head.

Professor J. M. Lawrence. Dynamics of chemical and physical characteristics of water, bottom muds and aquatic life in a large impoundment on a river. The objective of this study is to accumulate data on the amounts of incoming plant nutrients, their sites of accumulation and their abundance in tail-waters from the dam.

University of Alabama, University, Alabama 35486.

University Marine Laboratory. Director: G. A. Rounsefell.

This is a new laboratory from which multidiscipline research in marine waters will be conducted.

Florida

University of Florida, Gainesville, Florida 32601

Department of Bioenvironmental Engineering. Chairman: J. E. Kiker.

Comprehensive study of water coagulation.

Iodine disinfection of public water supplies including physiological effects.

Application of oxidation ponds in treatment of residential sewage.

Anti-pollution and sewage disposal for Florida communities.

Chemical and biological treatment of wood reduction liquid wastes.

Primary production and decomposition in estuarine water.

A study of estuarine pollution problems.

Department of Bacteriology. Chairman: M. E. Tyler.

Preliminary studies of bacteria from two estuaries, one heavily polluted and the other relatively clean, have been conducted. Further research is contemplated.

Florida State University, Tallahassee, Florida 32306

Oceanographic Institute. Director: C. H. Oppenheimer.

Professor Warren Litsky. Survival of pathogenic bacteria in the marine environment.

Florida State University (Cont'd)

This study is attempting to determine, using specially designed equipment and procedures, the viability in the marine environment of several pathogenic bacteria, including Coliform and Enterococci groups.

Professor Albert Collier. Role of nannoplankton in productivity.

Nannoplankton, which includes diatoms and flagellates in the size range of 1 to 10 μ, are capable of efficient utilization of low nutrient levels. The current study is aimed at determining their contribution and qualitative composition in oceanic waters.

Professor Winston Menzel. Artificial reefs.

Basic productivity is being investigated at an artificial reef. To date it has been found that basic productivity here compares favorably with natural areas.

Professor Detlef Warnke. Environmental research in the zero-energy land-sea boundary zones.

Quantitative study of three factor families (surface geometry, trafficability and vegetation) have been studied. Results based on these studies will be used to establish parameters for use in the study of growth and decay in this environment and rates of change that man may expect to find.

Professor Grant Goodell. Environmental studies of coastal areas and the continental shelf.

Environmental studies of coastal areas, bays, lagoons and estuaries will establish baselines from which future studies of environment alteration or pollution may depart.

Table 4b

Summary of Responses to Inquiries on
Research-in-Progress in Marine Waters,
South Atlantic Coast

North Carolina

University of North Carolina, Raleigh, North Carolina 27607

School of Public Health. Dean: W. F. Mayes.

Dr. J. D. Johnson, Dr. C. M. Weiss and Mr. L. O. Hill. Estuarine fluorides.

Concurrent with the development of phosphate mines in the Pamlico River Basin, chemical and biological studies of the River and Estuary were undertaken. Environmental baselines are being established and effects of the mining and ore benefication activities will be monitored.

Dr. J. D. Johnson, Dr. C. M. Weiss and Mr. R. W. Creekmore. Organics in water.

A liquid-liquid extraction system for the separation of organics from water was investigated. Hexane was used as an internal recycling solvent in a continuous multichamber liquid-liquid extractor to extract organics from the water. The solvent solutions were evaporated under vacuum and the residues redissolved in ether for analyses by infrared absorption spectrometry and by gas chromatography. The techniques were reasonably satisfactory except that residue impurities in the hexane masked some of the details of the unknown when analyzed.

Dr. C. M. Weiss and Mr. J. H. Gakstatter and Mr. F. G. Wilkes. Insecticides in the aquatic environment.

In one phase of this study it has been demonstrated that a large percentage of DDT and Dieldrin absorbed by fish may be located in visceral fat deposits. In the second part of this study Daphnia magna were exposed to DDT and then fed to dragon fly nymphs. DDT concentrations in the nymphs were found to be one to 4000 times greater than ambient concentrations in the surrounding waters.

In both studies the insecticides were tagged with C-14. Water samples were directly extracted with an equivalent amount of toluene containing suitable organic scintillators. Biological specimens were dissolved in one molar methanolic Hyamine 10-X hydroxide before addition of the toluene.

Dr. C. M. Weiss and Mr. D. P. Chynoweth. Biological baselines.

As part of baseline studies in Pamlico River and Sound a survey of benthic macroinvertebrates is being conducted. In addition to analyzing bottom samples, organisms which attached to artificial substrates hung in the water were enumerated. Preliminary studies indicated that by selecting sampling periods of suitable duration the quantity of organisms, as well as seasonal biota communities, can be optimized.

University of North Carolina (Cont'd)

Dr. J. C. Lamb, III, Dr. R. A. Mah, and Mr. Oliver Henderson, Jr. Microflotation of algae.

Variables suspected to be significant in the microflotation removal of algae from oxidation ponds are being investigated. These variables are the particular genera of algae, concentration of cells, gas flow rate, pH of the system, collector concentration and physiological state of the cell. Particular emphasis is being placed on the role of pH and collector concentrations.

Dr. J. C. Lamb, III, Dr. R. A. Mah, and Mrs. L. W. Little. Utilization of organic nitrogen compounds by algae.

Processes by which organic nitrogen wastes are broken down and stabilized in oxidation ponds are under investigation. Five nitrogenous compounds, all amides, (urea, formamide, acetamide, thioacetamide, and thiourea) which are associated with various industrial processes are being studied to establish their effect on growth, respiration and photosynthesis on Chlorella ellipsoidea on algae species prevalent in oxidation ponds.

Dr. E. J. Kuenzler. Phosphate cycling in natural systems.

Because phosphorus is an essential nutrient for plants, its concentrations in water may cause limited algae production or dense blooms. This study is attempting to measure the actual rates at which different algae species obtain phosphate at various phosphate concentrations in order to establish growth limiting values for each species.

Dr. J. C. Lamb, Charles Wentworth and Larry Lawson. Removal of ammonia by bubble aeration.

Using an aeration system consisting of a 3½-inch inside diameter, 48-inch long Pyrex column, ammonia was extracted from water by clean air introduced at the bottom of the column. Three critical variables, temperature, pH and gas flow rate were carefully controlled.

Dr. J. C. Lamb, Mr. August Vernimen and Mr. E. R. Henken. Short-term biochemical oxygen demand tests.

The purpose of this investigation was to develop a short-term biological oxygen demand test which could be used for estimating five-day BOD. A limited amount of substrate was added to activated sludge in the endogenous phase of respiration and the temporary increase in respiration rate of sludge was measured. This additional amount of oxygen consumed beyond that consumed by the endogenous sludge represents a short-term biochemical oxygen demand exerted by organisms.

Dr. C. M. Weiss, Mr. W. L. Huff, A. S. Maynard and W. R. Hartley. Oxidation ponds and tertiary treatment of municipal wastes.

Thermal stratification causes the ponds to operate less effectively than ponds that are well mixed. To overcome this, a series of over/under

University of North Carolina (Cont'd)

weirs were developed to facilitate mixing. Waste water held for three or four days in a series of ponds has concentrations of indicator organisms (coliforms and enterococci) reduced to levels that are associated with uncontaminated water.

Dr. P. H. Smith and Dr. R. A. Mah. Kinetics of acetate metabolism during anerobic sludge digestion.

Acetic acid labeled with C-14 was inoculated with sludge from a primary tank of a sewage treatment plant in a laboratory digestor. Gas samples were withdrawn from the digestor and the amount of methane measured. Results of the experiment indicate that about 73 percent of the methane resulted from degradation of acetic acid.

Water Resources Institute. Director: D. H. Howells.

Multidiscipline research on North Carolina estuaries. Summaries of work being conducted on estuaries in North Carolina are included in "Proceedings, symposium on estuarine ecology, coastal waters of North Carolina" published by the Water Resources Institute.

Duke University, Durham, North Carolina 27706

Department of Botany. Chairman: T. W. Johnson.

Professor T. W. Johnson. Systematics and occurrence of fungi in marine phytoplankton.

Virginia

Virginia Institute of Marine Science, Gloucester Point, Virginia 23062

Director: W. J. Hargis, Jr.

Professor M. L. Brehmer. Multidiscipline research on Virginia estuaries. A VIMS Special Scientific Report on the complete biological, chemical, geological and physical characteristics of the James River Estuary is scheduled for publication in late 1967.

Virginia Polytechnic Institute, Blacksburg, Virginia 24061

Department of Civil Engineering. Head: H. M. Morris.

F. E. McJunkin and W. R. Walker. "Water resources of Virginia, an inventory of printed information and data." This is a nonannotated bibliography of papers pertaining to water of Virginia.

Maryland

University of Maryland, College Park, Maryland 20742

Department of Zoology. Head: George Anastos.

Professor E. C. Keller, Jr. Thermal pollution effects on productivity. A 30-mile segment of the Patuxent River Estuary surrounding an effluent site from a steam generating plant is being investigated.

The Johns Hopkins University, Baltimore, Maryland 21218

Department of Sanitary Engineering and Water Resources.

Professor L. D. Jensen. Phosphate removal from activated sludge. This investigation is primarily concerned with the removal of various phosphates from activated sludge effluents prior to their disposal into an estuarine bay.

Professor L. D. Jensen. Heat exchange in the aquatic environment. Physical and biological effects of discharge of heated water from the condensers of central steam electric power operating stations are being investigated.

Professor L. D. Jensen. Storm drainage research. The influence of storm drainage waters upon water resources is being investigated.

Table 4c

Summary of Responses to Inquiries on
Research-in-Progress in Marine Waters,
North Atlantic Coast

Connecticut

University of Connecticut, Storrs, Connecticut 06208.

Department of Bacteriology. Acting Head: J. A. Cameron.
Department of Botany. Head: H. N. Andrews.
Marine Research Laboratory, Noank, Connecticut. Director: J. S. Rankin, Jr.

Personnel from these departments are conducting intensive investigations on the microbiology of the Connecticut River near an atomic power-generating plant site which is about 15 miles upstream from Long Island Sound. Because of plant design it is expected that significant thermal pollution will result from it.

Delaware

University of Delaware, Newark, Delaware 19711.

Department of Biological Sciences, Marine Laboratories. Director: Dr.C.G.Wilber.

Dr. Wilber. Recently wrote a book entitled "The Biological Aspects of Water Pollution" which has been published by Rhinehold Publishing Company.

Dr. Wilber. Studies on basic toxicological problems associated with water pollution. Currently these studies encompass the effects of hyper-oxygenation and metal poisonings related to fish and invertebrates.

Dr. Daiber. Investigation of the turnover of material between highlands and the ocean. This research, being carried on principally in the tidal marsh areas of Delaware, is concerned with changes in materials between the hinterland and the ocean complex.

New Jersey

Princeton University, Princeton, New Jersey 08540

School of Engineering and Applied Science. Chairman: N. J. Sallenberger.

Professors F. C. McMichael and L. M. Brush. Artificial mixing of stratified fluids. The object of this research is to develop engineering design information on the operation and control of density gradients in lakes and reservoirs.

Professor F. C. McMichael. Mixing by a jet in a stratified fluid.

New Jersey (Cont'd)

Rutgers University, New Brunswick, New Jersey 08903

Water Resources Research Institute. Director: William Whipple.

Several pollution-related projects are planned. Those affecting tidal areas include the ones given below:

Professor Whipple. Effects of oil pollution.

Professor Whipple. Oxygen regeneration of polluted streams.

New York

New York University, University Heights, Bronx, New York 10453.

School of Engineering and Science. Chairman: James Michalos.

Dr. W. E. Dobbins. Under the direction of Dr. Dobbins, Mr. David Bella is doing research on finite difference methods of analysis of the dispersal of pollutants in a tidal estuary.

Pennsylvania

Lehigh University, Bethlehem, Pennsylvania 18015

William H. Chandler Chemistry Laboratory.
Head, Department of Chemistry: E. D. Amstutz.

Professor J. R. Merkel. Proteolytic marine bacteria of Chesapeake Bay. Dr. Merkel is especially concerned with the isolation and the nature of enzymes which cause proteolysis.

Rhode Island

University of Rhode Island, Kingston, Rhode Island 02881

Graduate School of Oceanography.
Dean: J. A. Knauss, Narragansett Marine Laboratory.

Professor Nelson Marshall. Biological, economic and engineering aspects of depuration of shellfish. This study related to production of quahogs for market is being approached from economic, engineering and biological points of view.

The publication "The Economics of Quahog Depuration" discusses the work being done in this area of research.